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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|----------------------|------------------|
| 10/806,981 | 03/22/2004 | Yun Jang | 1190860-991490 | 2200 |
| 26379 | 7590 | 12/15/2005 | EXAMINER | |
| DLA PIPER RUDNICK GRAY CARY US, LLP 2000 UNIVERSITY AVENUE E. PALO ALTO, CA 94303-2248 | | | NGUYEN, THANH NHAN P | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2871 | |

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------------|--|--------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/806,981 | | JANG ET AL. | |
| | Examiner | | Art Unit | |
| | (Nancy) Thanh-Nhan P. Nguyen | | 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 10,11,13-23,31 and 36-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12,24-30, 32-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is responsive to Amendment dated 10/18/2005.
2. Applicants elect species a (claims 1-9, 12, 24-30 & 32-35) without traverse; claims 10, 11, 13-23, 31 & 36-47 are withdrawn from consideration.

Claim Objections

Claim 25 is objected to because of the following informalities: claim 25 currently read as "... wherein a third spacer ..." It appears it should have read as "... further comprising a third spacer ..." since a third spacer was not mentioned in claim 24.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Hiroshima et al U.S. Patent No. 6,705,584.

Regarding claim 1, Hiroshima discloses a liquid crystal display apparatus comprising: a first substrate (SUB1) including a first display part having a pixel electrode (not shown); a second substrate (SUB2) including a second display part having a common electrode (ITO2) that faces the pixel electrode; a liquid crystal layer (LC)

interposed between the first and second substrates; a seal line (SL) including a liquid crystal inlet (INJ), the seal line defining the first and second display parts; a first spacer (SP1) disposed between the first and second display parts, the first spacer maintaining a cell gap formed between the first and second substrates; and a second spacer (SP2) disposed near the liquid crystal inlet, the second spacer maintaining the cell gap.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-7, 12, 24-30, 32 & 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshima.

Regarding claim 2, even though Hiroshima lacks disclosure of wherein the first and second spacers are formed on the first substrate, it was obvious to one ordinary skill in the art to achieve it as rearrangement of parts, [see MPEP 2144.04.VI.C.Rearrangement of Parts]. Further, forming the first and second spacers on either first or second substrate wouldn't changed the main function of the spacers as retaining the cell gap in the device. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the first and second spacers are formed on the first substrate for retaining the cell gap in the device.

Regarding claim 3, Hiroshima discloses wherein the seal line (SL) is formed on the first substrate (SUB1), [see fig. 1].

Regarding claim 4, Hiroshima discloses wherein a number of the second space is plural, and the second spacers are arranged in a line, [see fig. 3].

Regarding claim 5, Hiroshima discloses wherein the line is substantially perpendicular to a liquid crystal injection direction, [see fig. 3].

Regarding claim 6, Hiroshima discloses wherein a number of the first spacer is greater than a number of the second spacer, and a supporting force of the first spacer per unit area is substantially same as the supporting force of the second spacer per unit area, [see fig. 3].

Regarding claim 12, Hiroshima discloses wherein the second spacer has a cylindrical shape, [see col. 5, lines 1-3].

Claim 24 is met the discussion regarding claim 2 rejection above, and further, it is inherently to seal the liquid crystal inlet after injecting the liquid crystal material in to the cell gap through the inlet.

Regarding claim 25, Hiroshima discloses a third spacer (SP3) is formed on the outside of the first display part so as to prevent a cell gap from being narrowed, [see fig. 3].

Regarding claim 26, Hiroshima discloses wherein a number of the second spacer and a number of the third spacer are plural respectively, and the second and third spacers are arranged in a line respectively, [see fig. 3].

Regarding claim 27, Hiroshima discloses wherein the line is substantially perpendicular to a liquid crystal injection direction, [see fig. 3].

Regarding claim 28, Hiroshima discloses wherein a number of the first spacer, a number of the second spacer and a number of the third spacer are plural respectively, the number of the first spacer is greater than the number of the second spacer and the number of the third spacer, and a supporting force of the first spacer per unit area is substantially same as the supporting force of the second and third spacers per unit area, [see fig. 3].

Regarding claim 30, Hiroshima discloses wherein a number of the second spacer and a number of the third spacer are plural respectively, and each of the second spacer and each of the third spacer are arranged in a line that is substantially perpendicular to a liquid crystal injection direction, [see fig. 3].

Regarding claim 32, Hiroshima discloses wherein the second spacer has a cylindrical shape, [see col. 5, lines 1-3].

Regarding claim 35, Hiroshima discloses wherein (a) the first display part includes i) a first electrode (not shown), ii) a switching device (not shown) that is electrically connected to the first electrode, iii) a first wiring (not shown) that is electrically connected to the switching device so as to apply a first voltage to the first electrode, and iv) a second wiring (not shown) that is electrically connected to the switching device so as to determine a time for applying the first voltage to the first electrode, and (b) the second display part includes a second electrode (ITO2) facing the first electrode.

Regarding claim 7, even though Hiroshima lacks disclosure of wherein a width of the liquid crystal inlet is in a range of about 11 mm to about 20 mm, a number of the

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second spacer is plural, a first distance between the second spacers is in a range of about 1.5 mm to about 2.0 mm, and a second distance between the second spacer and an edge of the liquid crystal inlet is in a range of about 0.5 mm to about 1.5 mm, it was known in the art that the width of the liquid crystal inlet is about 20 mm, and therefore, it would have been obvious to a person of ordinary skill in the art to have the second spacers spaced apart from each other about 1.5 mm to about 2.0 mm, and the second spacers spaced apart from an edge of the liquid crystal inlet about 0.5 mm to about 1.5 mm, for being functioned well as maintaining the cell gap, especially near the injection inlet. For instance, if the density of the second spacers is high, which is the second spacers spaced apart from each other less than 1.5 mm, the injecting liquid crystal process has to take more time to fill up the cell gap, and therefore resulting in slow manufacturing or getting low production; on the other hand, if the density of the second spacers is low, which is the second spacers spaced apart from each other more than 2.0 mm, the gap near the injection inlet could be bent and therefore resulting in defective filling process. Similarly results and reasons for the second spacers spaced apart from an edge of the liquid crystal inlet.

Claim 29 is similarly met the discussion regarding claims 24 & 7 rejection above.

Claims 8, 9, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshima et al in view of Kitamura et al U.s. Patent Application Publication No. 2002/0176046.

Regarding claims 8 & 9, even though Hiroshima lacks disclosure of a sealing member that seals the liquid crystal inlet, wherein the sealing member being spaced

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apart from the second spacer, and the sealing member comprises a material that is hardened when an ultraviolet light is irradiated, these are intended use limitations, as evidenced by Kitamura, [see fig. 1 & par. 0356], and therefore do not patentably distinguish the invention.

Claim 33 is met the discussion regarding claims 24 & 8 rejection above.

Claim 34 is met the discussion regarding claims 24 & 9 rejection above.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on M-F/9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

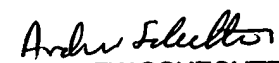
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(Nancy) Thanh-Nhan P. Nguyen
Examiner

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-- December 8, 2005 --




ANDREW SCHECHTER
PRIMARY EXAMINER